

REMARKS

Claims 1, 2, 11, 14, 17, 23-27, 29-32 and 34-35, 37, and 38 are now pending in this application, of which claims 1, 11, 23, 25-27, and 29-32 are in independent form.

Claims 1-14, 16-23, 25-27, 29-32, and 34 have been amended, claims 28 and 36 are cancelled, and new claims 37 and 38 have been added. Claims 3-10, 12, 13, 15, 16, 18-22, and 33 were previously withdrawn from further consideration as belonging to non-elected species, and are subject to being rejoined in the event that a generic claim is allowed.

Restriction/Election of Species

The application is, as the examiner notes, the National Stage of a PCT application, and is therefore subject to PCT Rule 13. However, Applicants respectfully submit that the Rule was not properly applied. Claims 1-32 were found by the International Search Authority to be compliant with the requirement for unity of invention. Moreover, Applicants submit that non-elected dependent claims 3-10, 12, 13, 15, 16, 18-22 and 33 are permitted under PCT Rule 13.4 as "claiming specific forms of the invention claimed in an independent claim, even where the features of any dependent claim could be considered as constituting in themselves an invention." Accordingly, Applicants respectfully request withdrawal of the restriction requirement and consideration of all claims.

In the event that Examiner disagrees that claims 3-10, 12, 13, 15, 16, 18-22 and 33 should be considered along with the elected claims, Applicants request that they be rejoined upon allowance of generic claims 1 and 11 from which they depend.

Claim Objections

The Office Action objects to claims 14 and 34 as being dependent upon a rejected base claim, and suggests the claims would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. In view of the amendments and arguments presented herein, claims 14 and 34 are believed to be in condition for allowance for at least the same reasons as base claim 11.

The Office Action objects to claims 27 and 30 for informalities, wherein the terms "current" and "previous" are alleged to have been transposed in location in the phrase "... so as

to emphasize grayscale transition at least from current vertical period to previous vertical period...”, supposedly putting them in conflict with the other independent claims and Examiner’s understanding of the flow of time. Although Applicants do not concede the appropriateness of the objection, the claims have been amended in accord with the Examiner’s suggestion in order to expedite prosecution. Withdrawal of the objections and reconsideration of the claims are respectfully requested.

Claim Rejections Under 35 U.S.C. § 101

The Office Action rejects claims 26 and 27 under 35 U.S.C. § 101, asserting that the claimed invention is directed to non-statutory subject matter (i.e., a program). Claims 26 and 27 have been amended in accordance with the specification and Applicants’ understanding of current USPTO-approved claim language to recite a computer-readable storage medium having a program stored thereon. Claims 26 and 27 are therefore believed to be in condition to overcome the § 101 rejection. Withdrawal of the § 101 rejection and reconsideration of claims 26 and 27 are earnestly solicited. Claims 28 and 36, which recited a corresponding storage medium, are cancelled.

Claim Rejections Under 35 U.S.C. § 102

The Office Action rejects claims 1, 11, 24, 25, 29, 30 and 32 under 35 U.S.C. § 102(b) as being anticipated by Japanese Unexamined Patent Publication No. 2003-143556 issued to Nitta et al. (hereinafter “Nitta”).¹ These rejections are respectfully traversed.

The present invention includes, in part, the features: (1) carrying out emphasis conversion in accordance with grayscale transition at least from previous vertical period to current vertical period in a progressive signal that has been subjected to an I/P conversion; and (2) variably controlling a degree of the emphasis conversion in each screen in accordance with two or more different I/P conversion methods (e.g., an I/P conversion only by intra-field interpolation or a motion adaptive I/P conversion).

¹ Applicants note that this reference is cited in the Office Action as “Tokukai”. The term “tokukai,” however, refers generally to Japanese unexamined patent applications (tokkyo) which are open to the public, or “laid open” (kokai). I.e., tokkyo + kokai = tokukai. The first-named inventor for the application is Hiroyuki NITTA.

Nitta does not disclose two or more I/P conversion methods.

Claims 1, 11, 25, 29, 30, and 32 each variously recite an I/P conversion section which converts interlaced video data “in accordance with any one of two or more I/P conversion methods”, each of which may be subject to a variable degree of emphasis conversion.

In contrast, Nitta discloses only one kind of I/P conversion method (i.e., the motion adaptive I/P conversion). Nitta discloses two interpolation pathways within the single I/P conversion method, the pathways being selected according to whether or not motion is detected between frames of video data.² (Nitta, Fig 20.) In one interpolation pathway (left-side pathway in Fig. 20, corresponding to detected motion) the I/P conversion method includes inner-field (i.e., intra-field) interpolation (I/P conversion process) and a correction value calculation (overdrive process). The other interpolation pathway (right-side pathway in Fig. 20, corresponding to no detected motion) includes only inter-field interpolation. However, both pathways are part of the same kind of I/P conversion method. Thus, Nitta does not disclose “two or more I/P conversion methods”.

Nitta does not disclose controlling a degree of emphasis conversion/correction according to which one of multiple I/P conversion methods is used.

The Office Action alleges that Nitta discloses, among other features, that “a degree of the emphasis conversion on the video data is controlled so as to be changed in accordance with which I/P conversion method among the two or more I/P conversion methods is used for the I/P conversion,” as variously recited by amended **claims 1, 11, 25, 29, 30, and 32**.

For the sake of argument, even if the alternative interpolation pathways in the Nitta reference were somehow interpreted as representing different I/P conversion methods (an interpretation disputed by the applicants), Nitta does not disclose changing “a degree of the emphasis conversion”. Rather, the alleged emphasis conversion (i.e., overdrive processing) is performed only if motion is detected. A *degree* of overdrive processing is not disclosed to be

² As discussed in the present specification, Nitta provides only “a [single] conversion method of performing interpolation between fields by motion detection and motion prediction compensation between adjacent fields.” (Present specification, page 10, lines 2-4.)

changeable by Nitta, much less changeable in accordance with which I/P conversion method is selected.

Applicants note that the degree of emphasis may, in the present invention, be changed in accordance with any and all of the two or more conversion methods available for I/P conversion. In the present invention, by changing, in accordance with the I/P conversion method, an extent (degree) of grayscale transition emphasis (or an extent (degree) of emphasis conversion) on the progressive signal that has been subjected to the I/P conversion, it is possible to carry out the grayscale transition emphasis (emphasis conversion) to a suitable extent (degree) all the time whichever conversion method is used in generating a progressive video signal. Therefore, the present invention attains a distinguished effect, which cannot be attained by any of the references, wherein it is possible to realize improvements both in response speed of the liquid crystal display device and in quality of a video image that is displayed on the liquid crystal display device. Thus, Nitta does not disclose changing a degree of emphasis in accordance with which conversion method among two or more I/P conversion methods is used.

Nitta does not disclose “emphasis conversion ... from previous vertical period to current vertical period in a progressive signal that has been subjected to an I/P conversion”.

Nitta's device applies the overdrive correction to an odd-numbered field in accordance with a difference in input data (amount of motion) between the previous and following even-numbered fields, and applies the overdrive correction to an even-numbered field in accordance with a difference in input data (amount of motion) between the previous and following odd-numbered fields. Therefore, unlike the present invention, the invention of Nitta does not emphasize the grayscale transition at least from previous vertical period to current vertical period in the progressive signal that has been subjected to the I/P conversion.

The present invention determines, according to the I/P conversion method and a pattern of the grayscale transition from previous vertical period to current vertical period (e.g., 16.7msec) in the progressive signal that has been subjected to the I/P conversion, a degree of the emphasis conversion on the progressive signal that has been subjected to the I/P conversion. Therefore, the present invention is completely different from the invention of Nitta, which controls the overdrive correction on the progressive signal, which has been subjected to the I/P

conversion, in a “master field” according to an amount of motion of input video signal between the previous and following fields of the master field (e.g., 33.3 msec). Accordingly, Nitta fails to disclose this feature of the present claims.

In summary, Applicants respectfully submit that Nitta does not disclose at least:

- two or more I/P conversion methods,
- a correction section wherein a *degree* of grayscale transition emphasis performed by the correction section is changed in accordance with which I/P conversion method among the two or more I/P conversion methods is used by the I/P conversion section, and
- emphasis conversion in accordance with grayscale transition at least from previous vertical period to current vertical period in a progressive signal,

as variously recited in independent claims 1, 11, 25, 29, 30, and 32. **Claim 24** depends from claim 11 and is believed to be in condition for allowance for the same reasons. Withdrawal of the rejection and reconsideration of the claims are earnestly solicited.

Claim Rejections Under 35 U.S.C. § 103

The Office Action rejects claims 23, 26-28, 31, 35 and 36 under 35 U.S.C. § 103(a) as being unpatentable over Nitta, and rejects claims 2 and 17 under 35 U.S.C. § 103(a) as being unpatentable over Nitta in view of published PCT Application Publication No. WO-03/041043 issued to Sugino et al. (hereinafter “Sugino”). These rejections are respectfully traversed.

Claims 28 and 36 are cancelled. Rejection thereof is moot.

Independent claims 23, 26, 27, and 31 are believed to be in condition for allowance for the same reasons discussed above for the rejection under §102. That is, claims 23, 26, 27, and 31, as amended, variously recite “a degree of the grayscale transition emphasis is changed in accordance with which I/P conversion method among the two or more I/P conversion methods is used by the I/P conversion section.”

Nitta does not disclose at least:

- multiple I/P conversion methods,
- changing the degree of emphasis,
- dependence of the degree of change on which I/P conversion method is used, or
- emphasis conversion in accordance with grayscale transition at least from previous vertical period to current vertical period in a progressive signal.

As Nitta does not teach every feature of the claims, they are believed to be in condition for allowance. **Claim 35** depends from claim 23 and is believed to be allowable for the same reason. Applicants respectfully request withdrawal of the rejection and reconsideration of claims 23, 26, 27, 31, and 35.

Claims 2 and 17 depend from claims 1 and 11, believed to be in condition for allowance as discussed above. Sugino does not remedy the deficiencies of Nitta discussed above. Claims 2 and 17 are believed, therefore, to be in condition for allowance. Withdrawal of the rejection and reconsideration of claims 2 and 17 are respectfully requested.

New Claims

Claims 37 and 38 separately claim alternative embodiments previously recited alternatively in claim 34. Thus, no new matter has been introduced. Consideration of the claims is respectfully requested.

CONCLUSION

In view of the above amendment, applicant believes the pending application is in condition for allowance.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact James C. Larsen, Reg. No. 58,565 at the telephone number of the undersigned below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37.C.F.R. §1.16 or 1.17; particularly, extension of time fees.

Dated: December 5, 2008

Respectfully submitted,

By 

Michael R. Cammarata

Registration No.: 39,491

James C. Larsen 

Registration No.: 58,565

BIRCH, STEWART, KOLASCH & BIRCH, LLP

8110 Gatehouse Road

Suite 100 East

P.O. Box 747

Falls Church, Virginia 22040-0747

(703) 205-8000

Attorneys for Applicant